

WHAT IS CLAIMED IS:

1.           A bearing device comprising:  
          a bearing member including a bearing surface; and  
          a shaft member including a bearing surface which is relatively rotatably supported by the bearing member in such a manner that the bearing surface of the shaft member is arranged so as to face the bearing surface of bearing member;  
          wherein one of the bearing member and the shaft member is formed of a porous metal sintered body having hollow holes and the hollow holes in the bearing surface of the metal sintered body is filled with a lubricating resin to seal apertures in the bearing surface of the hollow holes by the lubricating resin and thereby the bearing surface is formed of both a resin surface of the lubricating resin and a metal surface of the metal sintered body.
2.           The bearing device according to claim 1, further comprising dynamic pressure generating grooves for a dynamic pressure bearing device which are formed on the bearing surface comprising both the resin surface of the lubricating resin and the metal surface of the metal sintered body.
3.           The bearing device according to claim 2, wherein the bearing fluid is air and the lubricating resin is filled to a depth of ten (10)  $\mu\text{m}$  or more from the bearing surface.
4.           The bearing device according to claim 1, the lubricating resin is filled by impregnation.
5.           A motor provided with a bearing device, the bearing device comprising:  
          a bearing member including a bearing surface; and  
          a shaft member including a bearing surface which is relatively rotatably supported by the bearing member in such a manner that the bearing surface of the shaft member is arranged so as to face the bearing surface of bearing member;  
          wherein one of the bearing member and the shaft member is formed of a porous metal sintered body having hollow holes and the hollow holes in the bearing surface of the metal sintered body is filled with a lubricating resin to seal apertures in the bearing surface of the hollow holes by the lubricating resin and thereby the bearing surface is formed of both a resin surface of the lubricating resin and a metal surface of the metal sintered body.

6. A manufacturing method for a bearing device comprising:  
providing a blank material which is formed of a porous metal sintered body having hollow holes for a bearing member including a bearing surface;  
coating a lubricating resin on the bearing surface of the metal sintered body;  
after the coating, impregnating the lubricating resin on the bearing surface of the metal sintered body to seal apertures of the hollow holes in the bearing surface of the metal sintered body;  
and then, removing a surplus lubricating resin from a surface of a metal which forms the bearing surface of the bearing member;  
forming the bearing surface comprised of both the surface of the lubricating resin and the surface of the metal of the metal sintered body; and  
arranging the bearing surface of bearing member so as to face a bearing surface of a shaft member which is relatively rotatably supported by the bearing member.
7. The manufacturing method for a bearing device according to claim 6, wherein the lubricating resin is not impregnated in a depth at least 10  $\mu\text{m}$  or more from an outer peripheral wall surface of the bearing member on a center side.
8. A bearing device comprising:  
a bearing member having a bearing surface; and  
a shaft member having a bearing surface and being rotatably coupled to the bearing member such that the bearing surface of the shaft member faces the bearing surface of the bearing member;  
wherein one of the bearing member and the shaft member includes a porous metal sintered body having hollow holes and the hollow holes contain a lubricating resin to seal apertures in the bearing surface of the hollow holes such that the bearing surface of the one member includes both a resin surface of the lubricating resin and a metal surface of the metal sintered body.
9. The bearing device according to claim 8, wherein the bearing device is a dynamic pressure bearing device having dynamic pressure generating grooves formed on the bearing surface having both the resin surface of the lubricating resin and the metal surface of the metal sintered body.

10. The bearing device according to claim 9, wherein the bearing fluid is air and the lubricating resin is filled to a depth of ten (10)  $\mu\text{m}$  or more from the bearing surface of the one member.